

MicNano

Micro to Nano

MNLS Piezo Stage

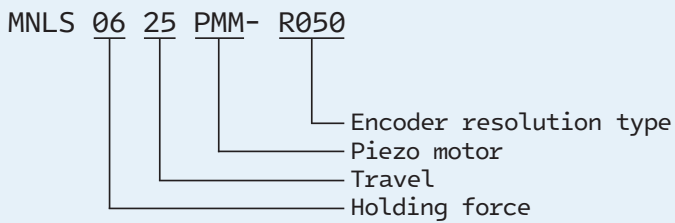
奈米定位壓電滑台系列

- 行程：5 ~ 70 mm
 - 承受附載：20 kg
 - 推力：3 ~ 10 N
 - 移動速度：0 ~ 10 mm/sec
 - 解析度：50 nm
-

緊湊簡約設計，馬達不外露，便於機構空間配置
內置長行程式壓電馬達與光學尺
搭配控制器做速度調整與閉迴路位置控制

標準品最高行程達 70 mm
閉迴路位置控制最高至 50 nm
開迴路控制最小進給量達 0.5 nm

充分發揮壓電馬達特性
具零背隙效果，高響應加減速，斷電煞車作用
另可選配製作更高解析度，更高行程與真空環境版本



MNLS Series | Piezo Stage |

MNLS0620PM - R080	6 - 7
MNLS0670PM - R080	8 - 9
MNLS0625PMM - R050	10 - 11
MNLS0640PMM - R050	12 - 13
MNLS0670PMM - R050	14 - 15
MNLS2020PMM - R050	16 - 17
MNLS2040PMM - R050	18 - 19
MNLS2070PMM - R050	20 - 21

MNLS0620PM-R080

內置超微型光學尺

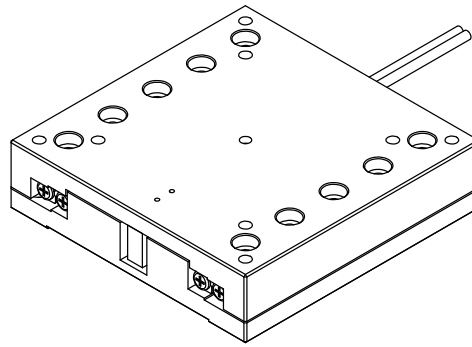
荷重 : 200 N (水平放置)

推力 : 3 N

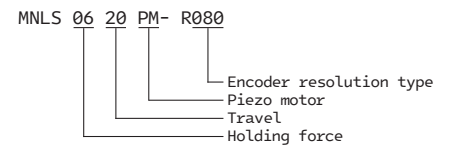
剎車力 : 6 N

解析度 : 80 nm

行程 : 20 mm

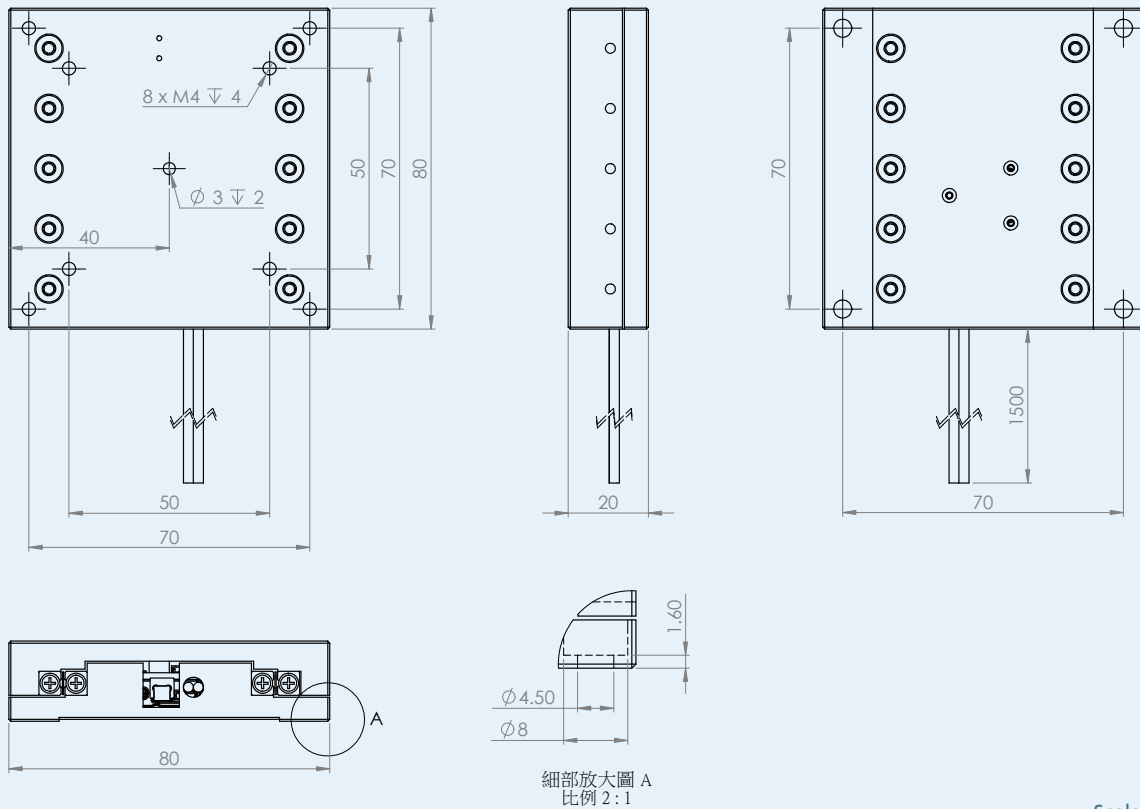


緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用



Technical Specification		
Size	80*80*20	mm
Travel	20	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	80	nm
Straightness	±1	µm
Flatness	±1.5	µm
Accuracy	±3	µm
Repeatability	±0.15	µm
Pitch	100	µrad
Yaw	60	µrad
Motor	LL06	
Controller	PMD401	

Dimensional drawing



Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Black	GND
2	Pink	Phase4
3	Orange	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	Black	Quadrature Index I
2	Pink	GND
3	Orange	+5 V (max 200 mA)
4	Green	Quadrature Signal B+
5	Yellow	Quadrature Signal A+
6	Brown	NC

MNLS0670PM-R080

內置超微型光學尺

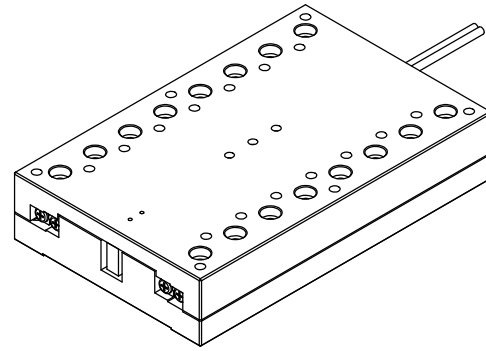
荷重 : 200 N (水平放置)

推力 : 3 N

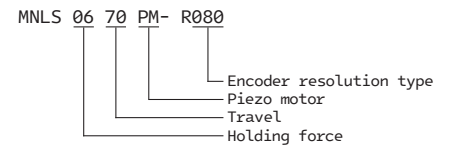
剎車力 : 6 N

解析度 : 80 nm

行程 : 70 mm

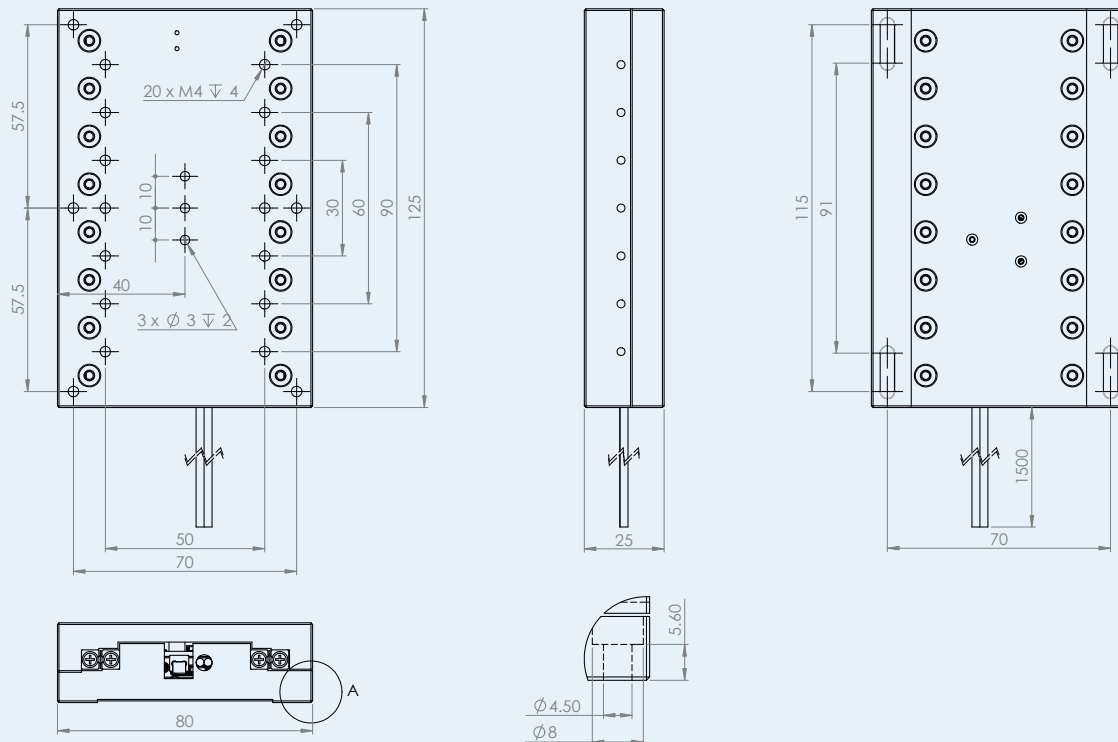


緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用



Technical Specification		
Size	80*125*25	mm
Travel	70	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	80	nm
Straightness	±1.5	µm
Flatness	±3	µm
Accuracy	±5	µm
Repeatability	±0.4	µm
Pitch	150	µrad
Yaw	100	µrad
Motor	LL06	
Controller	PMD401	

Dimensional drawing



細部放大圖 A
比例 2:1.1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Black	GND
2	Pink	Phase4
3	Orange	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	Black	Quadrature Index I
2	Pink	GND
3	Orange	+5 V (max 200 mA)
4	Green	Quadrature Signal B+
5	Yellow	Quadrature Signal A+
6	Brown	NC

MNLS0625PMM-R050

內置超微型光學尺

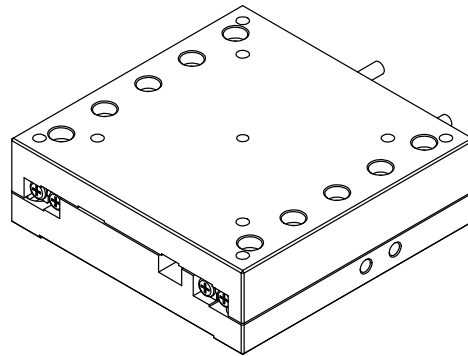
荷重 : 200 N (水平放置)

推力 : 3 N

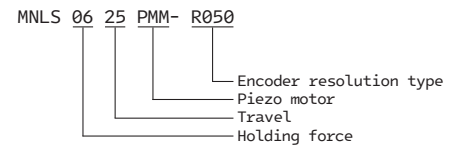
剎車力 : 6 N

解析度 : 50 nm

行程 : 20 mm



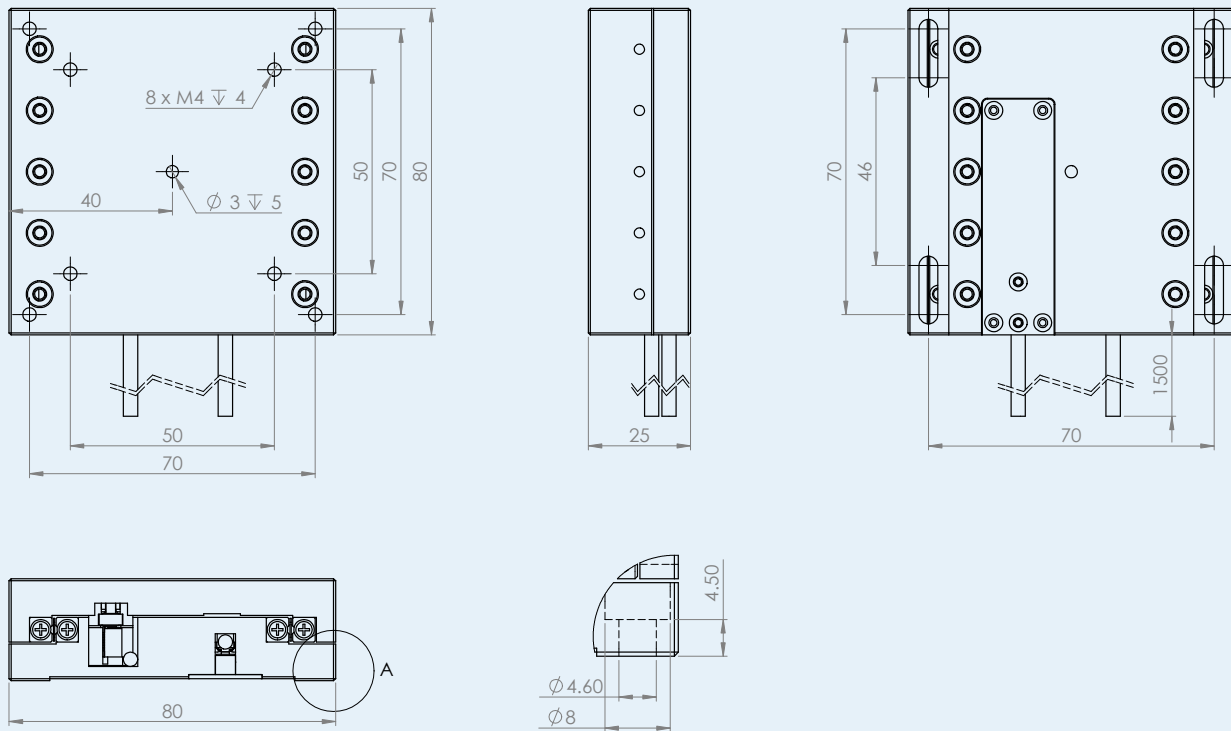
緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
 另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*80*25	mm
Travel	25	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±1.5	µm
Accuracy	±2	µm
Repeatability	±0.1	µm
Pitch	100	µrad
Yaw	60	µrad
Motor	LL1011A	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

MNLS0640PMM-R050

內置超微型光學尺

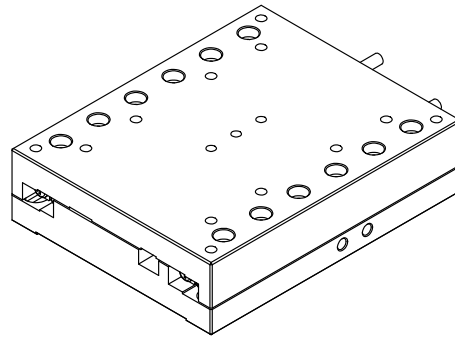
荷重 : 200 N (水平放置)

推力 : 3 N

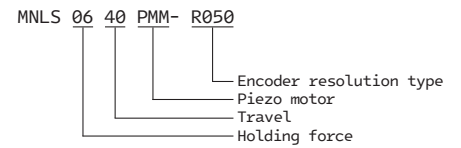
剎車力 : 6 N

解析度 : 50 nm

行程 : 40 mm



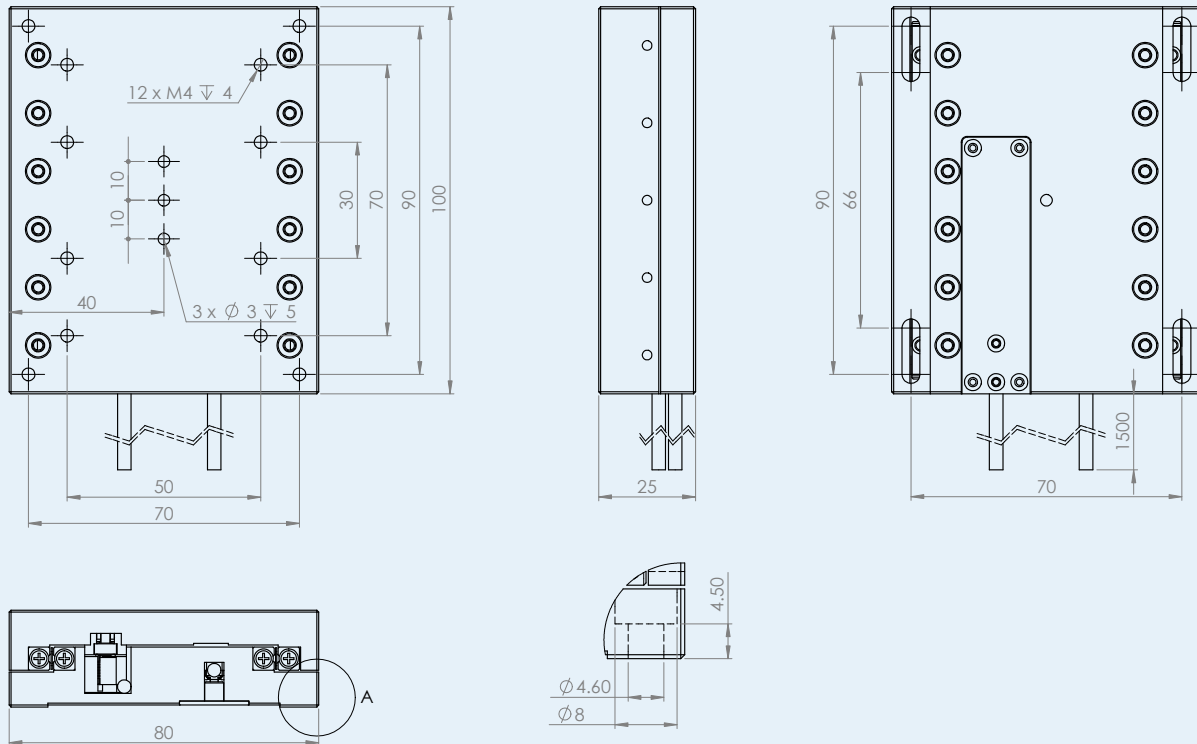
緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
 另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*100*25	mm
Travel	40	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±2.5	µm
Accuracy	±2.5	µm
Repeatability	±0.1	µm
Pitch	120	µrad
Yaw	80	µrad
Motor	LL1011A	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

MNLS0670PMM-R050

內置超微型光學尺

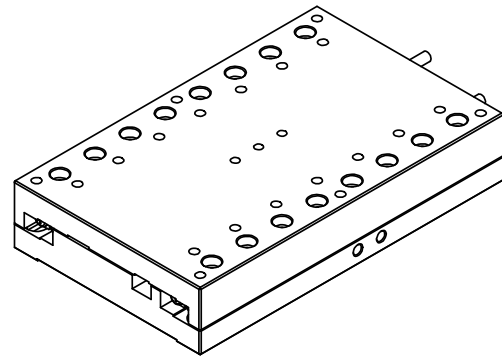
荷重 : 200 N (水平放置)

推力 : 3 N

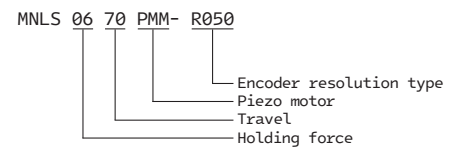
剎車力 : 6 N

解析度 : 50 nm

行程 : 70 mm



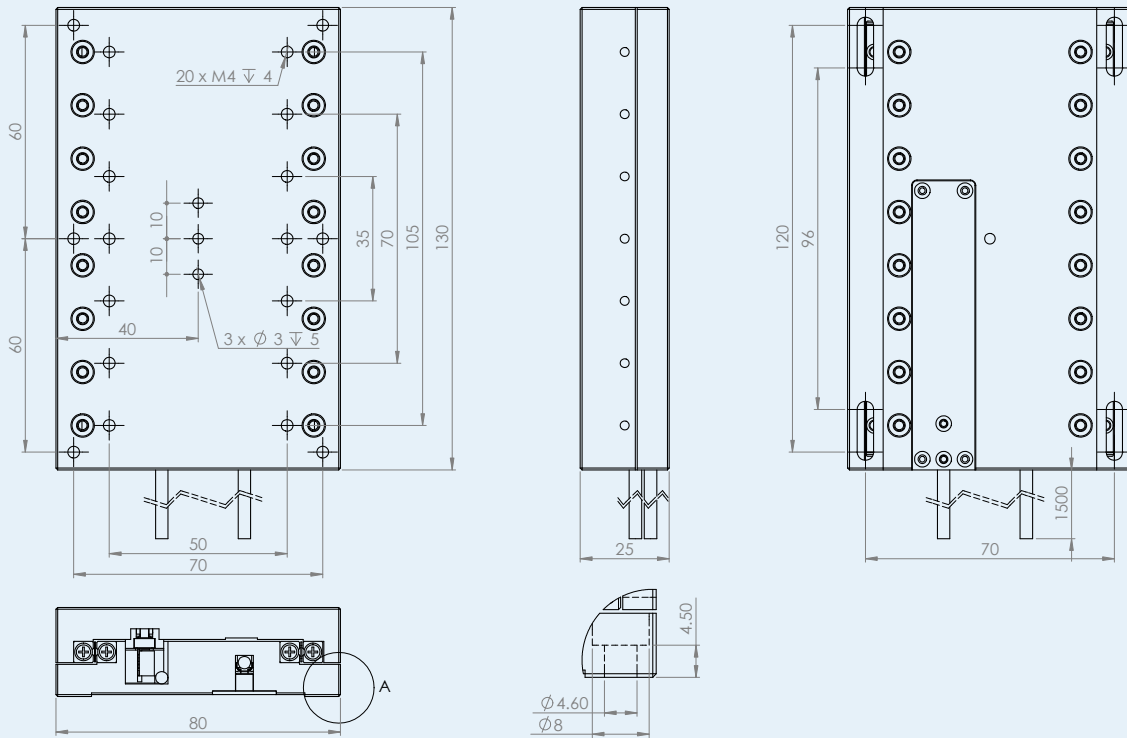
緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
 另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*130*25	mm
Travel	70	mm
Holding Force	6	N
Continuous Force	3	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1.5	µm
Flatness	±3	µm
Accuracy	±3	µm
Repeatability	±0.15	µm
Pitch	150	µrad
Yaw	100	µrad
Motor	LL1011A	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2 : 1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

MNLS2020PMM-R050

內置超微型光學尺

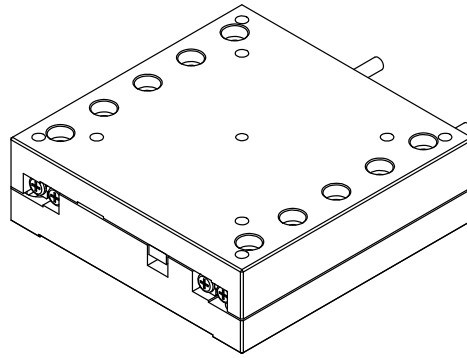
荷重 : 200 N (水平放置)

推力 : 10 N

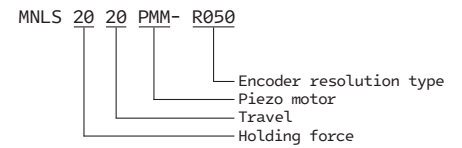
剎車力 : 20 N

解析度 : 50 nm

行程 : 20 mm



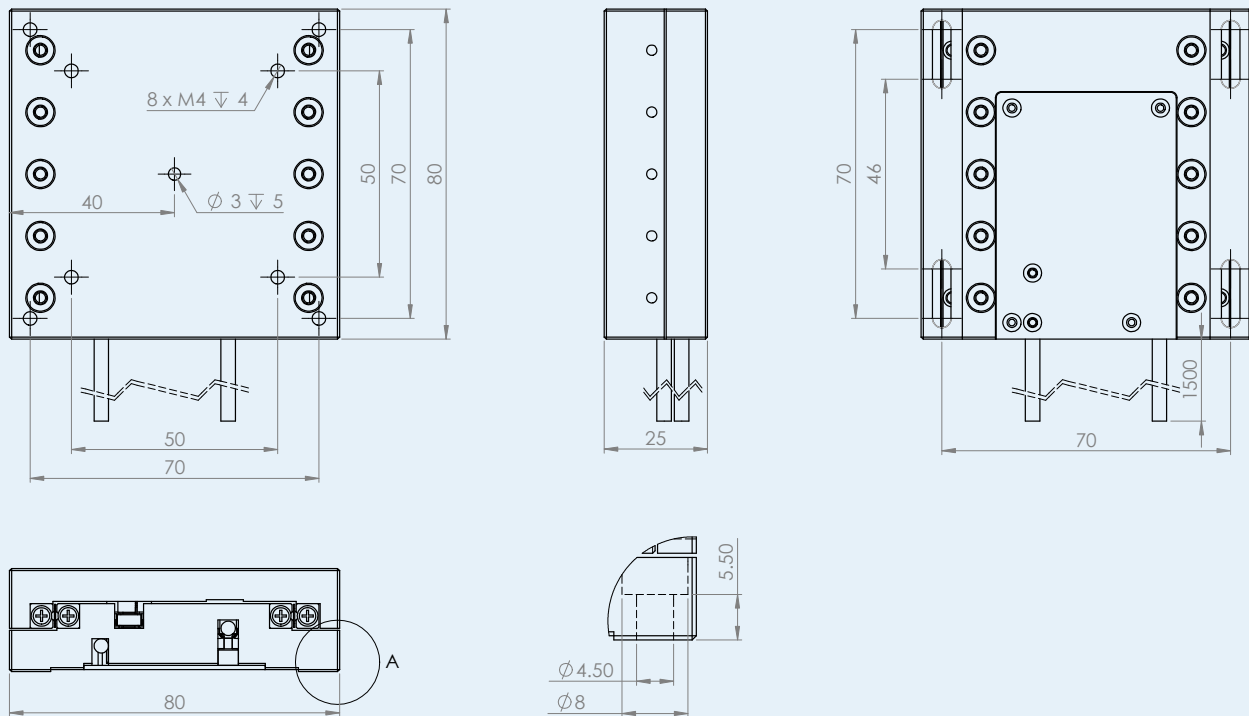
緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
 另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*80*20	mm
Travel	20	mm
Holding Force	22	N
Continuous Force	10	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±1.5	µm
Accuracy	±2	µm
Repeatability	±0.1	µm
Pitch	100	µrad
Yaw	60	µrad
Motor	LT2020	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

MNLS2040PMM-R050

內置超微型光學尺

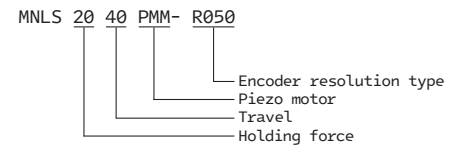
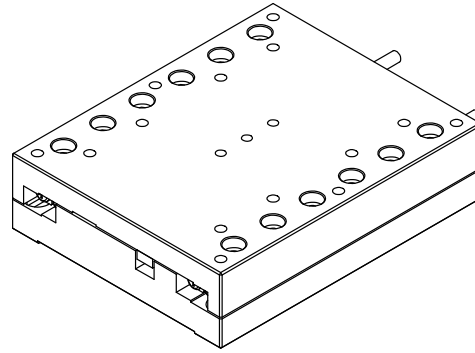
荷重 : 200 N (水平放置)

推力 : 10 N

剎車力 : 20 N

解析度 : 50 nm

行程 : 40 mm



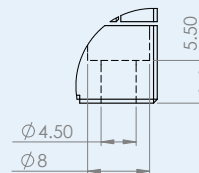
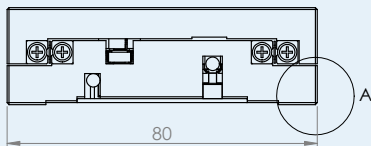
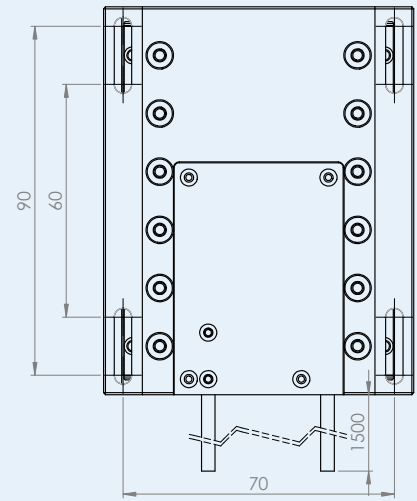
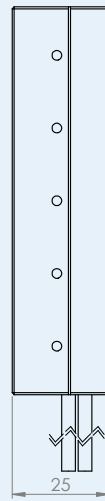
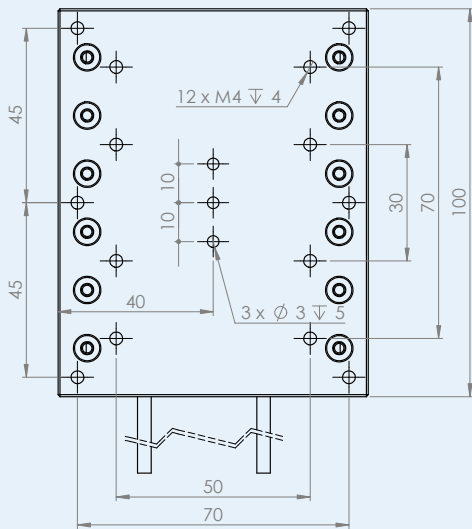
緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
 另可選配製作更高解析度，更高行程與真空環境版本

Technical Specification

Size	80*100*20	mm
Travel	40	mm
Holding Force	22	N
Continuous Force	10	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1	µm
Flatness	±2.5	µm
Accuracy	±2.5	µm
Repeatability	±0.1	µm
Pitch	120	µrad
Yaw	80	µrad
Motor	LT2020	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-

MNLS2070PMM-R050

內置超微型光學尺

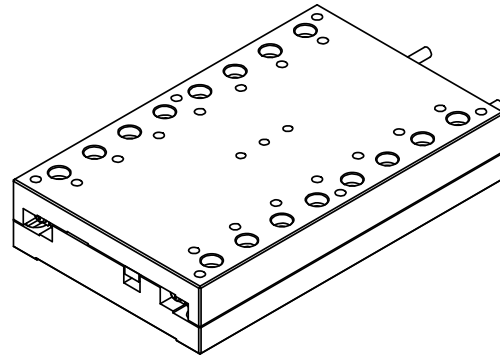
荷重 : 200 N (水平放置)

推力 : 10 N

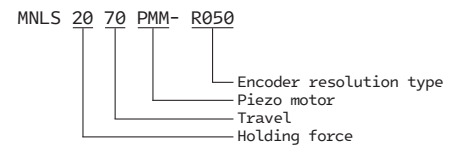
剎車力 : 20 N

解析度 : 50 nm

行程 : 70 mm



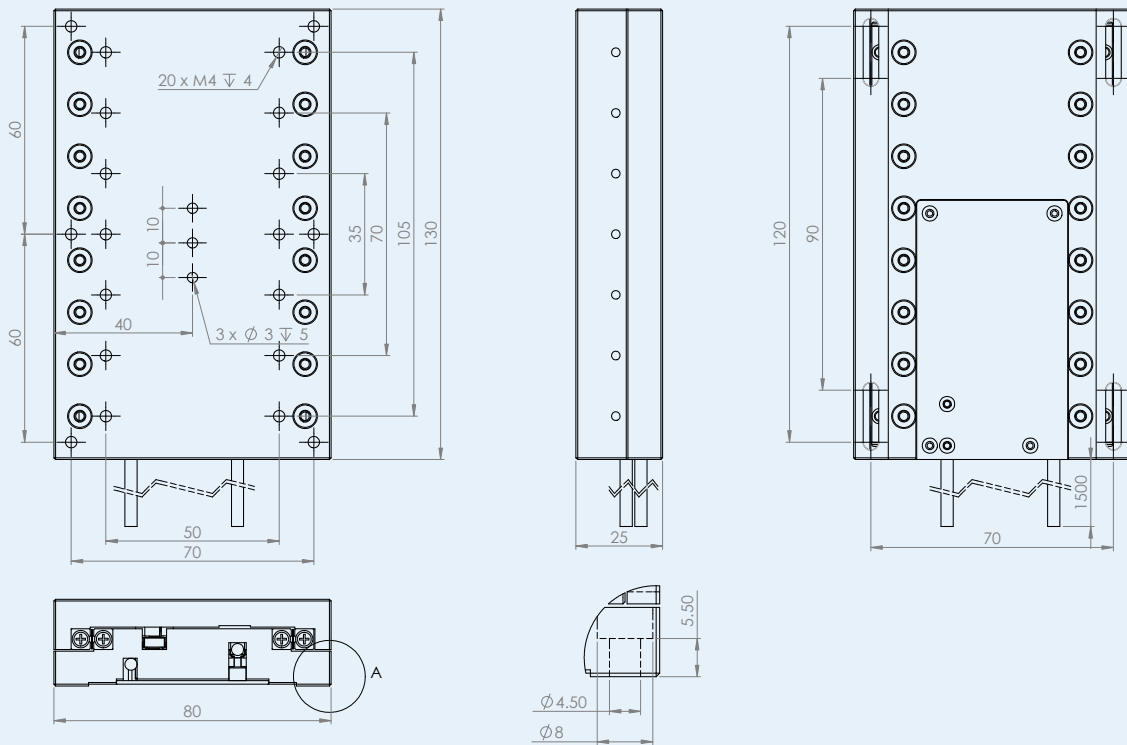
緊湊簡約設計，馬達不外露，便於機構空間配置
 搭配控制器做速度調整與閉迴路位置控制
 充分發揮壓電馬達特性，具零背隙效果，高響應加減速，斷電煞車作用
 另可選配製作更高解析度，更高行程與真空環境版本



Technical Specification		
Size	80*130*25	mm
Travel	70	mm
Holding Force	22	N
Continuous Force	10	N
Loading Force	200	N
Speed	10	mm/sec
Resolution	50	nm
Straightness	±1.5	µm
Flatness	±3	µm
Accuracy	±3	µm
Repeatability	±0.15	µm
Pitch	150	µrad
Yaw	100	µrad
Motor	LT2020	
Controller	PMD401	

*NOTE : Customized specifications in a vacuum environment is available on request.

Dimensional drawing



細部放大圖 A
比例 2:1

Scale reduced mm

Motor Pin Assignment

Connector Type : JST 05SR-3S

Pin	Color	Terminal
1 ▲	Brown	GND
2	Gray	Phase4
3	White	Phase3
4	Green	Phase2
5	Yellow	Phase1

Encoder Pin Assignment (Single-ended)

Connector Type : JST 06SR-3S

Pin	Color	Terminal
1 ▲	White	Quadrature Index I
2	Brown	GND
3	Red	+5 V (max 200 mA)
4	Blue	Quadrature Signal B+
5	Green	Quadrature Signal A+
6	Gray	NC

Encoder Pin Assignment (Differential)

Connector Type : JST 10SR-3S

Pin	Color	Terminal
1	Pink	Quadrature Signal B-
2	Black or Brown	GND
3		NC
4	Blue	Quadrature Signal B+
5	Grey	Quadrature Index I-
6		NC
7	Yellow	Quadrature Signal A-
8	White	Quadrature Index I+
9	Green	Quadrature Signal A+
10	Red	+5 V (max 200 mA)

Encoder Pin Assignment (RENISHAW)

Connector Type : 15-way D-type (D)

Pin	Color	Function	Signal
7.8	Brown	Power	5V
2.9	White	Power	0V
14	Red	Incremental	A+
6	Blue	Incremental	A-
13	Yellow	Incremental	B+
5	Green	Incremental	B-
12	Violet	Reference mark	Z+
4	Grey	Reference mark	Z-
3	Orange	Alarm	E-
1	Clear	Remote CAL	CAL
Case	Screen	Shield	-